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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 09/746,045  
Filing Date: December 22, 2000  
Appellant(s): Antonio J. Colmenarez

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John J. Fry  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 02/23/07 appealing from the Office action mailed 05/26/06.

**(1) Real Party in Interest**

The above-identified application is assigned, in its entirety, to Koninklijke Philips Electronics N.V., Eindhoven, NL.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The summary of claimed subject matter contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The appellant's statement of the summary of the claimed subject matter to be reviewed on appeal is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

Girod (US 6,677,987); Livits(US 5,661,505); Kim, et al. (US 6,424,335); Fitts (US 5,175,601); Arita, et al. (US 6,188,388); Rice, et al. (US 5,973,672); Bowling (US 5,746,261); McTernan, et al. (US Patent Application No. 2001/0056477); Lin (US Patent No. 6,346,933 B1).

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claim 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Girod (US Patent No. 6,677,987 B1) in view of Livits (US patent No. 5,661,505).

As to claim 1, Girod teaches a system, comprising:

at least one light source in a movable hand-held device (See Fig. 1, items 110, 112, Col. 3, Lines 20-33), the movable hand-held device being capable of sending control signals to a remotely controllable device (See Figs. 1-2, , items 102, 122, 202, 208, Col. 3, Lines 42-44 and Col. 4, Lines 30-46);

at least on light detector that detects light from light source (See Fig. 1, item 108, Col. 3, Lines 21-27); and

a control unit (in the reference is equivalent to remote control system) that receives image data from at least one light detector (See Fig. 2, item 206, Col. 4, Lines 30-40);

wherein the control unit (in the reference is equivalent to remote control system) detects position of the hand-held device (See Fig. 2, item 206, Col. 4, Lines 30-40) in at least two-dimensions from the image data from the at least one light detector (See Fig. 1, items 110, 104, Col. 3, Lines 44-48) and translates the position to control a feature on a display (See Fig. 1, items 102, 122, Col. 3, Lines 42-44).

Girod does not disclose a change of feature corresponds to a movement of the movable hand-held device relative to the user.

Livits teaches a change of feature corresponds to a movement of the movable hand-held device relative to the user (See Col. 3, Lines 18-23).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Livits into Girod system in order to provide an improved input device (See Col. 3, Lines 8-15 in the Livits reference).

As to claim 2, Girod teaches at least one light detector is a digital camera (See Fig. 2, item 204, in description see Col. 4, Lines 51-56).

As to claim 3, Girod teaches digital camera captures a sequence of digital images that include the light emitted by the hand-held device (See Fig. 2, item 206, Col.

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5, Lines 3-6) , sequence of digital images transmitted to the control unit (See Figs. 4-5, item 420, from Col. 5, Line 66 to Col. 6, Line 15).

As to claim 4, Girod teaches the control unit comprises an image detection algorithm that detects the image of the light of the hand-held device in the sequence of images transmitted from the digital camera (See Fig. 6, items 602-620, Col. 7, Lines 23-54).

As to claim 5, Girod teaches the control unit maps a position of the detected hand-held device in the images to a display space for the display (See Fig. 1, item 12, Col. 3, Lines 43-45).

As to claim 6, Girod teaches the mapped position in the display space controls the movement of a feature in the display space (See Fig. 1, item 12, Col. 3, Lines 43-45).

As to claim 7, Girod teaches the feature in the display space is a cursor (See Fig. 1, item 12, Col. 3, Lines 43-45).

2. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Girod and Livits in view of Lin (US Patent No. 6,346,933 B1).

Girod and Livits do not show the captured images processed by the control unit for the purpose of teleconferencing, image transmission, and image recognition.

Lin teaches the captured images processed by the control unit for the purpose of teleconferencing (presentation), image transmission, and image recognition (See Col. 2, lines 30-34).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Lin into Girod and Livits system in order to provide an interactive presentation control system (See Col. 2, Lines 30-34 in the Lin reference).

3. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Girod and Livits as aforementioned in claim 1 in view of Kim. et al. (US Patent No. 6,424,335 B1).

Girod and Livits do not show at least one light source is an LED.

Kim et al. teaches LED as light source See Fig. 1, item 100, in description See Col. 8, Lines 44-58).

It would have been obvious to one of ordinary skill in the art at the time of invention to use LED as light source as shown by Kim et al. in the Girod and Livits apparatus in order to achieve wireless input device which is energy efficient, consistent with operating the input device an extended distance from the computer (See Coll. 3, Line 66 to Col. 4, Line 2 in the Kim et al reference).

4. Claims 11-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Girod and Livits as aforementioned in claim 1 in view of Fitts (US Patent No. 5,175,601).

As to claims 11-12, Girod and Livits do not show two digital cameras each capture a sequence of digital images that include the light emitted by the hand-held device, transmitted by each camera to the control unit.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13,15, in description See Col. 7, Lines 45-68).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Girod and Livits apparatus to allow two digital cameras each capture a sequence of digital images that include the light emitted by the hand-held device, transmitted by each camera to the control unit in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

As to claim 13, Girod and Livits do not show two digital cameras.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13,15, in description See Col. 7, Lines 45-68).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Girod and Livits apparatus to develop an image detection algorithm that detects the image of the light of the hand-held device in each sequence of images transmitted from two digital cameras in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

As to claim 14, Girod and Livits do not show the control unit with depth detection algorithm that uses the position of the light in the images received from each of the two cameras to determine a depth parameter from a change in a depth position of the hand-held device.

Fitts teaches two cameras with digitizers and processing of digitized images (See Fig. 1, items 2-3, 13,15, in description See Col. 7, Lines 45-68).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Girod and Livits apparatus to develop depth detection algorithm that uses the position of the light in the images

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received from each of the two cameras to determine a depth parameter from a change in a depth position of the hand-held device cameras in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

As to claims 15-16, Girod and Livits do not show the control unit maps a position of detected hand-held device in at least one of the images from one of the cameras and depth parameter to a 3D rendering in a display space and mapped position controls the movement of a feature in 3D rendering in the display space.

Fitts teaches to use identifiable points on 3-D surface and measuring X-Y-Z coordinates of these points based on knowledge of how two cameras are referenced to each other (See Fig. 1, items 2-3, 12, in description See Col. 3, Lines 33-54).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two cameras as shown by Fitts in the Girod and Livits apparatus to map a position of detected hand-held device in at least one of the images from one of the cameras and depth parameter to a 3D rendering in a display space and mapped position controls the movement of a feature in 3D rendering in the display space in order to permit on line interaction (See Coll. 6, Line 45-46 in the Fitts reference).

5. Claims 17-21 rejected under 35 U.S.C. 103(a) as being unpatentable Girod and Livits as aforementioned in claim 1 in view of Arita et al. (US Patent No. 6,188,388 B1).

As to claims 17-18, Girod and Livits do not show two light sources in one hand-held unit and the digital camera captures a sequence of digital images that includes the



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light from the two light sources of the hand-held, the sequence of images transmitted to the control unit.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in Girod and Livits apparatus to allow the digital camera captures a sequence of digital images that includes the light from the two light sources of the hand-held, the sequence of images transmitted to the control unit in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

As to claim 19, Girod and Livits do not show image detection algorithm that detects the image of the two light sources of the hand-held unit in the sequence of images transmitted from the digital camera.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in the Girod and Livits apparatus to allow an image detection algorithm that detects the image of the two light sources in the sequence of images transmitted from the digital camera in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

As to claims 20-21, Girod and Livits do not show and detected angular aspect of the hand-held device from the images of the two light sources does not maps angular aspect to a display space.

Arita et al. teaches two light sources in one hand-held unit (See Fig. 1, 9-10, items Pb, Kh, Ki, in description See Col.12, Lines 11-25).

It would have been obvious to one of ordinary skill in the art at the time of invention to use two light sources as shown by Arita et al. in the Girod and Livits apparatus to allow show and detected angular aspect of the hand-held device from the images of the two light sources does not maps angular aspect to a display space in order to improve precision (See Coll. 4, Line 5-8 in the Arita et al. reference).

6. Claim 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Girod and Livits as aforementioned in claim 1 in view of Fitts.

Girod and Livits do not show light source emits visible light.

Fitts teaches visible light as light source (See Fig. 1, item 8, in description See Col. 8, Lines 33-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to use visible light source as shown by Fitts in the Girod and Livits apparatus.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Rice et al. (US Patent 5,973,672) in view of Girod and Livits.

Rice et al. teaches a system comprising:

two or more movable hand-held devices (See Fig. 1, item 15), each hand-held device with at least one light source at least one of the two or more movable hand-held device being capable of sending control signals to a remotely controllable device (See Fig. 1, items 15,25, in description See from Col. 1, Line 61 to Col. 2, Line 54),

at least one light detector detecting light from the at least one light source of each of the two or more hand-held devices (See Fig. 1, item 18, in description See Col. 1, Line 61 to Col. 2, Line 26),

a control unit that receives image data from the at least one light detector (See Fig. 1, items 19-23, in description See Col. 1, Line 61 to Col. 2, Line 26),

wherein the control unit detects wherein the control unit detects position of the light spot on a screen of the two or more movable hand-held devices in at least two dimensions from the image data from the at least one light detector and translates the positions for each of the two or more movable hand-held devices to separately control two or more respective features on a display (See Fig. 1, items 19-23, in description See Col. 1, Line 61 to Col. 2, Line 26).

Rice et al. does not teach the control unit detects position of the hand-held device in at least two-dimensions from the image data from at least one light detector and translates the position to control a feature on a display.

Girod teaches wherein the control unit (in the reference is equivalent to remote control system) detects position of the hand-held device (See Fig. 2, item 206, Col. 4, Lines 30-40) in at least two-dimensions from the image data from the at least one light

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detector (See Fig. 1, items 110, 104, Col. 3, Lines 44-48) and translates the position to control a feature on a display (See Fig. 1, items 102, 122, Col. 3, Lines 42-44).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Girod into the Rice et al. apparatus in order to control computer based applications (See Col. 1, Lines 43-45 in the Girod reference).

Rice et al. and Girod does not disclose a change of at least one of features corresponds to a movement of at least one of two or more the movable hand-held devices relative to user of at least one of two or more the movable hand-held device.

Livits teaches a change of feature corresponds to a movement of the movable hand-held device relative to the user (See Col. 3, Lines 18-23).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Livits into Rice et al. and Girod system in order to provide an improved input device (See Col. 3, Lines 8-15 in the Livits reference).

8. Claims 24-26 rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al. ,Girod and Livits as aforementioned in claim 23 in view Kim et al.

Rice et al. ,Girod and Livits do not show the at least one light source of the two or more hand-held devices each turn on and off at a flashing frequency and emit light at a flashing wavelength with different frequencies.

Kim et al. teaches digital pulse format suitable for infrared transmission and detection as well known (see Fig. 2C, item 180, in description See Col. 8, Lines 44-58).

It would have been obvious to one of ordinary skill in the art at the time of invention to use pulsing sources as shown by Kim et al. in the Rice et al. ,Girod and Livits apparatus at a flashing wavelength with different frequencies in order to allow input device is energy efficient (See Coll. 3, Line 66-67 in the Kim et al. reference).

9. Claim 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al., Kim et al., Livits and Girod as aforementioned in claim 26 in view of Fitts.

Rice et al., Kim et al., Livits and Girod do not show light source emits visible light.

Fitts teaches visible light as light source (See Fig. 1, item 8, in description See Col. 8, Lines 33-35).

It would have been obvious to one of ordinary skill in the art at the time of invention to use visible light source as shown by Fitts in the Rice et al., Kim et al., Livits and Girod apparatus.

10. Claim 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Girod in view of Bowling (US Patent N0.5,746,261) and Livits.

Girod teaches a system, comprising:

at least one light source in a movable hand-held device (See Fig. 1, items 110, 112, Col. 3, Lines 20-33), the movable hand-held device being capable of sending control signals to a remotely controllable device (See Figs. 1-2, , items 102, 122, 202, 208, Col. 3, Lines 42-44 and Col. 4, Lines 30-46);

at least on light detector that detects light from light source (See Fig. 1, item 108, Col. 3, Lines 21-27); and

a control unit (in the reference is equivalent to remote control system) that receives image data from at least one light detector (See Fig. 2, item 206, Col. 4, Lines 30-40);

wherein the control unit (in the reference is equivalent to remote control system) detects position of the hand-held device (See Fig. 2, item 206, Col. 4, Lines 30-40) in at least two-dimensions from the image data from the at least one light detector (See Fig. 1, items 110, 104, Col. 3, Lines 44-48) and translates the position to control a feature on a display (See Fig. 1, items 102, 122, Col. 3, Lines 42-44).

Girod does not disclose the control unit detects the position of the hand-held device relative to the position of a user carrying the hand-held device.

Bowling teaches the control unit detects the position of the hand-held device relative to the position of a user carrying the hand-held device (See from Col. 14, Line 65 to Col. 15, Line 4).

It would have been obvious to one of ordinary skill in the art at the time of invention to use position of the user as shown by Bowling in Girod system in order to improve remote control (See Col. 2, Lines 8-9 in the Bowling reference).

Girod and Bowling do not disclose a change of feature corresponds to a movement of the movable hand-held device relative to the user.

Livits teaches a change of feature corresponds to a movement of the movable hand-held device relative to the user (See Col. 3, Lines 18-23).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Livits into Girod and Bowling system in order to provide an improved input device (See Col. 3, Lines 8-15 in the Livits reference).

11. Claim 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Girod in view of McTernan et al.(Pub. No.: US 2001/0056477 A1) and Livits.

Girod teaches a system, comprising:

at least one light source in a movable hand-held device (See Fig. 1, items 110, 112, Col. 3, Lines 20-33), the movable hand-held device being capable of sending control signals to a remotely controllable device (See Figs. 1-2, , items 102, 122, 202, 208, Col. 3, Lines 42-44 and Col. 4, Lines 30-46);

at least one light detector that detects light from light source (See Fig. 1, item 108, Col. 3, Lines 21-27); and

a control unit (in the reference is equivalent to remote control system) that receives image data from at least one light detector (See Fig. 2, item 206, Col. 4, Lines 30-40);

wherein the control unit (in the reference is equivalent to remote control system) detects position of the hand-held device (See Fig. 2, item 206, Col. 4, Lines 30-40) in at least two-dimensions from the image data from the at least one light detector (See Fig. 1, items 110, 104, Col. 3, Lines 44-48) and translates the position to control a feature on a display (See Fig. 1, items 102, 122, Col. 3, Lines 42-44).

Girod does not disclose three dimensions.

McTernan et al. teaches 3Dspace with use of two cameras (See Fig. 3, items 56, 58, page 3, paragraph 0040).

It would have been obvious to one of ordinary skill in the art at the time of invention to use 3D space as shown by McTernan et al. in Girod system in order to track marker from multiple location (See page 2, paragraph 0021 in the McTernan et al. reference).

feature on a display (See Fig. 1, items 102, 122, Col. 3, Lines 42-44).

Girod and McTernan et al. do not disclose a change of feature corresponds to a movement of the movable hand-held device relative to the user.

Livits teaches a change of feature corresponds to a movement of the movable hand-held device relative to the user (See Col. 3, Lines 18-23).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate teaching of Livits into Girod and McTernan et al. system in order to provide an improved input device (See Col. 3, Lines 8-15 in the Livits reference).

#### **(10) Response to Argument**

On page 8, 1<sup>th</sup> paragraph of Appeal brief, in relation to independent claim 1, Applicant's stated that Livits says nothing about detecting position of the housing. However, this feature was shown by Girod reference. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of



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references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

On page 8, 1<sup>th</sup> paragraph of Appeal brief, in relation to independent claim 1, Applicant's stated that a keyboard of Livits change relative to a position of the keyboard with respect to a surface without regard to a position of a user. Thus, for instance, pivoting the housing of the keyboard to a first position relative to a desk or other supporting structure will result in a key having a particular functionality regardless of a position of the user with respect to the housing. However, if Livits reference mentioned change relative to a position of the keyboard with respect to a horizontal surface, **then position relative to the user also will change** with three stable positions to best suit the comfort of the user (figs 2A-2B, col. 6, lines 9-45).

On page 8, 1<sup>th</sup> paragraph of Appeal brief, in relation to independent claim 1, Applicant's stated that Livits says nothing about particular functionality. However, translation of the position to control feature on a display was shown by Girod reference (fig. 1, items 102,122, col. 3, lines 42-44). In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The same Arguments related to all independent claims.

#### **(11) Related Proceeding(s) Appendix**

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No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Leonid Shapiro/

Examiner, Art Unit 2629

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June 25, 2009

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